

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Confirmation No.: 4925

Stefan FRENZEL, *et al.*

Date: January 5, 2009

Serial No.: 10/539,781

Group Art Unit: 4162

Filed: September 20, 2005

Examiner: Colette B. Nguyen

For: EXTRACTION OF INGREDIENTS FROM BIOLOGICAL MATERIAL

VIA EFS-WEB
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUBMISSION

Sir:

Submitted herewith is a copy of art together with a form listing the same for the convenience of the Examiner. The references were submitted in an opposition proceeding in the European Patent Office against the parallel German Patent DE 102 60 983 A1.

I respectfully request that the information submitted be considered and enclose credit card payment via EFS-WEB of the required \$180.00 fee.

A Statement of Relevancy of the teachings of the cited prior art which is not in the English language to the present invention is provided below for the convenience of the Examiner.

Statement of Relevancy

Document WO 99/64634:

This document discloses a method for isolating ingredients from a plant material, namely sugar beets or pieces of sugar beet. The method comprises the step of electroporating the biological material in electric fields (electro-plasmolysis) and subsequently pressing the electroporated material with high pressure (20 to 30 bar, corresponding to 2 to 5 MPa) to obtain a sugar-containing raw juice. The pressing/extraction takes place at a temperature less than 45°C. The document does not disclose the combination of electroporation and conventional diffusion (claim 18). The document does not disclose electroporation in combination with alkaline diffusion (claim 1). The contents of WO 99/64634 closely correspond to the contents of "High Electric

Field Pulse Treatment: Potential for Sugar Beet Processing,": M.N. Eshtiaghi et al., Journal of Food Engineering 52 (2002): 265-272.

FR 2805199 A1:

This document discloses the pressing of plant material, in particular sugar beets to obtain juice. During pressing the material is treated with electrical pulses to confer electropelasmolysis. A press cake is obtained, accordingly a considerable high pressure is used for pressing. The pressure applied ranges from 0.1 to 3 MPa. The document does not disclose conventional diffusion. The document does not disclose alkaline diffusion (claim 1).

FR 0092466 A1:

This document concerns the extraction of sugar beets by diffusion, in particular alkaline diffusion. Sugar beet cossettes are treated with Ca-saccharate at temperatures below 15°C, heated to 70°C and subjected to subsequent extraction by diffusion. The document does not disclose treatment by electroporation. The document does not disclose a step of separating off cell juice from electroporated biological material.

CH 661411:

The English language family member is US 4,608,920, a copy of which is also provided.

DE 3150314 A1:

The document discloses a method for obtaining sugar-containing juice from sugar beet, comprising the step of mincing the material to obtain a mush. The document does not disclose electroporation. The document does not disclose conventional diffusion. The document does not disclose alkaline diffusion.

"Wie kommt der Zucker aus der Rübe?" Presseinformation Forschungszentrum Karlsruhe 31/2001:

This document discloses a method for obtaining sugar-containing juice from sugar beet, the method comprising the steps of electroporation of the sugar beet material and extraction of the electroporated material. Although not explicitly disclosed, the term "extraction" is understood as a

step of (conventional) diffusion. The document teaches that due to electroporation the temperature for extraction/diffusion can be performed at a lower temperature, leading to a saving of energy. At the same time, the extracted sugar-containing juice is more pure. The document does not disclose alkaline diffusion. The document does not disclose the step of separating off cell juice from the electroporated biological material before extraction treatment.

DE 10210554 A1:

This document discloses methods and means for commination/mincing of sugar beet material by a high-pressure water jet. The document does not disclose conventional diffusion. The document does not disclose alkaline diffusion. The document does not disclose a step of separating off cell juice from electroporated biological material before extraction treatment.

DE 3233282 A1:

This document does not relate to methods or means for obtaining cell juice from a biological material. The document relates to inactivation of germs by electromagnetic high-frequency energy, for sterilisation or disinfection.

DT 2402947 A1 (DE 2402947 A1):

This document discloses a device for electroporation treatment of cut plant raw material to increase the yield of juice obtained from the material. The document does not disclose conventional diffusion. The document does not disclose alkaline diffusion.

FR 256820 A1:

This document discloses a device for extraction of juice from plant material by decompression (mechanical disruption due to sudden release of pressure, expansion). The document does not disclose conventional diffusion. The document does not disclose alkaline diffusion.

In the event the actual fee is greater than the payment submitted or is inadvertently not enclosed or if any additional fee due during the pendency of this application is not paid, the Patent and Trademark Office is authorized to charge the underpayment to Deposit Account No. 15-0700.

Respectfully submitted,

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MAF:stb
Enclosures